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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,807	10/19/2001	Tetsuya Watanabe	36595-176071	7561

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EXAMINER

PATEL, VISHAL A

ART UNIT PAPER NUMBER

3676

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/981,807

Applicant(s)

WATANABE ET AL.

Examiner

Vishal Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 6-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim 4 is withdrawn (does not read on figure 1).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potter (US. 4,383,691) in view of Azuma (JP 60199544 A).

Potter disclose a shaft sealing apparatus, comprising:

a vacuum casing (casing that surrounds the shaft, column 2, lines 66-67) formed with a vacuum chamber (chamber in the casing);

a drive shaft (35) having an outer cylindrical surface (cylindrical surface of 35) and movably extending in the vacuum chamber of the vacuum casing;

a sealing ring (seal ring shown in figure 3) in the form of an annular ring shape (the seal ring has an annular ring shape) and including a sealing lip (13 having a lip) held in contact with the outer cylindrical surface of the drive shaft, an annular spring member (14) operative to impart a force to the sealing lip to ensure that the sealing lip is held in tight contact with the outer cylindrical surface of the driving shaft, and

a peripheral portion (20) radially outwardly extending from the sealing lip;

a coil spring 4 (well know in the art that coil springs are made from a wire wrapped helical in shape).

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Potter discloses the invention substantially as claimed above but fails to disclose the outer cylindrical surface of the drive shaft is smaller in surface roughness Ra than 0.1 micrometer.

Azuma teaches to have a surface of a shaft to be smaller in surface roughness Ra than 0.1 micrometer. Azuma teaches to have a surface to have a surface roughness as taught by JIS B0601. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the outer cylindrical surface to have a surface roughness that is smaller in surface roughness Ra than 0.1 micrometer as taught by Azuma, since have a roughness would be obvious to one having ordinary skill in the art (since JIS B0601 teaches to have surface roughness).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potter and Azuma as applied to claim 1 above, and further in view of Aihara (US. 5,853,502).

Potter and Azuma disclose the invention substantially as claimed above but fail to disclose the outer cylindrical surface of the shaft to have hardness larger than Hv 650. Aihara teaches to have a shaft to have a cylindrical surface that has hardness larger than Hv 650. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the outer cylindrical surface of the shaft of Potter and Azuma to have hardness larger than Hv 650, to provide better strength and excellent hardness as required by a particular environment.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potter and Azuma as applied to claim 1 above, and further in view of Reinsma (US. 4,331,339).

Potter and Azuma disclose the invention substantially as claimed above but fail to disclose the sealing lip of the sealing ring is made of a synthetic resin constituted by an ultra high

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molecular weight compound. Reinsma teaches to have a seal made from synthetic resin constituted by an ultra high molecular weight compound (column 4, lines 1-10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the sealing lip of Potter and Azuma to be formed of a synthetic resin constituted by an ultra high molecular weight compound as taught by Reinsma, to provide stronger lip seal (abstract of Reinsma).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pawlakowitsch teaches a vacuum casing have a vacuum chamber having a lip seal, Cyphers et al discloses a seal member made from a synthetic resin constituted by an ultra high molecular weight compound, Kodokawa teaches to have hardness of a particular value on a cylindrical surface of a shaft, Janian et al, Balsells teaches a seal that can be used in various pressure environment and particularly in a vacuum environment, Hashimoto discloses a seal in a vacuum environment and Stephenson et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is (703) 308-8495. The examiner can normally be reached on Monday through Friday from 7:30 PM to 4:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight, can be reached on (703) 309-3179.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168. Technology Center 3600 Customer Service is available at 703-308-1113. General Customer Service numbers are at 800-786-9199 or 703-308-9000. Fax Customer Service is available at 703-872-9325.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

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or faxed to: 703-872-9326, for formal communications for entry before Final action: or,
703-872-9327, for formal communications for entry after Final action.

For informal or draft communications, please label "**PROPOSED**" or "**DRAFT**" and fax to:
703-746-3814.

Hand-delivered responses should be brought to Crystal Park Five, 2451 Crystal Drive,
Arlington, Virginia, Seventh Floor (Receptionist suite adjacent to the elevator lobby).

VP

April 9, 2003



Anthony Knight
Supervisory Patent Examiner
Tech. Center 3600